CLAIMS

1. An optical recording medium having tracks each of which is constructed by a plurality of pits which are formed on the basis of first data to be recorded and a land between the pits,

wherein said plurality of pits are deviated from the center of the track on the basis of second data.

2. A medium according to claim 1, wherein said plurality of pits are deviated in the direction which perpendicularly crosses said track center across said track center.

3. A medium according to claim 2, wherein said plurality of pits are arranged at at least one of a center position on said track center, a first position which perpendicularly crosses said track center across said track center, and a second position which sandwiches said track center together with said first position on the basis of said second data.

4. A medium according to claim 3, wherein said plurality of pits are arranged at said center position at every predetermined period.

5. A medium according to claim 3, wherein said plurality of pits are arranged at said center position on a predetermined recording unit basis.

6. A medium according to claim 1, wherein said first data is main data which is recorded onto said

optical recording medium and said second data is additional data of said main data.

7. A medium according to claim 6, wherein said additional data is data including at least copyright management data.

8. A medium according to claim 6, wherein said first data is the main data which is recorded onto said optical recording medium and said second data is lower bits of said main data.

9. A medium according to claim 1, wherein an enciphering process has been performed to said first data and said second data is key data for deciphering the enciphering process performed to said first data.

10. A recording apparatus for an optical recording medium, comprising:

a light source for outputting a recording laser beam;

a light modulator for modulating said recording laser beam outputted from said light source on the basis of supplied first data;

a light deflector for deflecting the modulated recording laser beam that is outputted from said light modulator on the basis of supplied second data in the direction which almost perpendicularly crosses a scanning direction of said modulated recording laser beam of the optical recording medium; and

an objective lens for converging said modulated recording laser beam that is outputted from said light deflector onto said optical recording medium.

11. An apparatus according to claim 10, further comprising a signal processing unit for forming said first data and said second data on the basis of supplied data.

12. An apparatus according to claim 11, further comprising: a first driving unit to which said first data is supplied from said signal processing unit and which drives said light modulator; and a second driving unit to which said second data is supplied from said signal processing unit and which drives said light deflector.

13. An apparatus according to claim 11, wherein said signal processing unit forms said first data on the basis of main data which is recorded on said optical recording medium and forms said second data on the basis of additional data of the main data which is recorded on said optical recording medium.

14. An apparatus according to claim 11, wherein said signal processing unit forms said first data on the basis of upper bits of main data which is recorded on said optical recording medium and forms said second data on the basis of lower bits of said main data.

15. A reproducing apparatus for an optical

recording medium having tracks each of which is constructed by a plurality of pits which are formed on the basis of first data to be recorded and a land between the pits, comprising:

an optical pickup for reading out said first data and second data from the optical recording medium on which said plurality of pits have been deviated from the center of said track on the basis of the second data;

a first demodulating unit for demodulating said first data on said optical recording medium on the basis of an output signal from said optical pickup; and

a second demodulating unit for demodulating said second data on said optical recording medium on the basis of the output signal from said optical pickup.

16. An apparatus according to claim 15, further comprising a signal processing unit for forming a reproduction signal and a tracking error signal on the basis of the output signal from said optical pickup, and wherein said reproduction signal from said signal processing unit is supplied to said first demodulating unit, and said tracking error signal from said signal processing unit is supplied to said second demodulating unit.

17. An apparatus according to claim 16, wherein said second demodulating unit comprises: a filter unit

for extracting a high frequency component of said tracking error signal which is supplied from said signal processing unit; and a demodulation processing unit for demodulating an output signal from said filter unit.

18. An apparatus according to claim 15, wherein said optical pickup comprises a photodetector having a first photodetecting unit and a second photodetecting unit which are formed by dividing into at least two units in said track direction of said optical recording medium, said apparatus further comprises a signal processing unit for arithmetically operating output signals from said first photodetecting unit and said second photodetecting unit, a sum signal indicative of a sum of the output signals from said first photodetecting unit and said second photodetecting unit is supplied to said first demodulating unit from said signal processing unit, and a difference signal indicative of a difference of the output signals from said first photodetecting unit and said second photodetecting unit is supplied to said second demodulating unit from said signal processing unit.

19. An apparatus according to claim 18, wherein said second demodulating unit comprises: a filter unit for extracting a high frequency component of said difference signal which is supplied from said signal processing unit; and a demodulation processing unit for

demodulating an output signal from said filter unit.

20. An apparatus according to claim 15, further comprising a synthesizing unit for synthesizing an output signal from said first demodulating unit and an output signal from said second demodulating unit.

21. An apparatus according to claim 15, further comprising an external apparatus discriminating unit for discriminating whether an external apparatus connected to said apparatus is a legal external apparatus or not, and wherein when it is determined by said external apparatus discriminating unit that the external apparatus connected to said apparatus is the legal external apparatus, at least an output signal from said second demodulating unit is outputted.

22. A reproducing apparatus for an optical recording medium having tracks each of which is constructed by a plurality of pits which are formed on the basis of first data to be recorded and a land between the pits, comprising:

an optical pickup for reading out said first data and second data from the optical recording medium on which said plurality of pits have been deviated from the center of said track on the basis of the second data;

a first demodulating unit for demodulating said first data on said optical recording medium on the basis of an output signal from said optical pickup;

a second demodulating unit for demodulating said second data on said optical recording medium on the basis of the output signal from said optical pickup; and

a control unit for controlling the operation of said second demodulating unit on the basis of identification data read out from said optical recording medium by said optical pickup.

23. An apparatus according to claim 22, wherein said identification data recorded on said optical recording medium is data showing whether said second data has been recorded on said optical recording medium or not, and said control unit makes said second demodulating unit operative when said identification data indicates that said second data has been recorded on said optical recording medium.

24. An apparatus according to claim 23, further comprising a signal processing unit for forming a reproduction signal and a tracking error signal on the basis of the output signal from said optical pickup, and wherein said reproduction signal from said signal processing unit is supplied to said first demodulating unit, and said tracking error signal from said signal processing unit is supplied to said second demodulating unit.

25. An apparatus according to claim 24, wherein said control unit comprises a switching unit provided

between said signal processing unit and said second demodulating unit and a discriminating unit for switching the operation of said switching unit on the basis of said identification data, and when said identification data indicates that said second data has been recorded on said optical recording medium, said discriminating unit controls the switching operation of said switching unit so as to allow said tracking error signal to be supplied to said second demodulating unit.

26. An apparatus according to claim 25, wherein said second demodulating unit comprises: a filter unit for extracting a high frequency component of said tracking error signal which is supplied from said signal processing unit; and a demodulation processing unit for demodulating an output signal from said filter unit.

27. An apparatus according to claim 22, further comprising a synthesizing unit for synthesizing an output signal from said first demodulating unit and an output signal from said second demodulating unit.

28. An apparatus according to claim 25, wherein said control unit further has another switching unit which is switched by said discriminating unit and selects either an output signal from said synthesizing unit or the output signal from said second demodulating unit.

29. An apparatus according to claim 23, wherein

said optical pickup comprises a photodetector having a first photodetecting unit and a second photodetecting unit which are formed by dividing into at least two units in said track direction of said optical recording medium, said apparatus further comprises a signal processing unit for arithmetically operating output signals from said first photodetecting unit and said second photodetecting unit, a sum signal indicative of a sum of the output signals from said first photodetecting unit and said second photodetecting unit is supplied to said first demodulating unit from said signal processing unit, and a difference signal indicative of a difference of the output signals from said first photodetecting unit and said second photodetecting unit is supplied to said second demodulating unit from said signal processing unit.

30. An apparatus according to claim 29, wherein said second demodulating unit comprises: a filter unit for extracting a high frequency component of said difference signal which is supplied from said signal processing unit; and a demodulation processing unit for demodulating an output signal from said filter unit.

31. An apparatus according to claim 22, further comprising an external apparatus discriminating unit for discriminating whether an external apparatus which is connected to said apparatus is a legal external apparatus or not, and wherein when it is determined by

said external apparatus discriminating unit that the external apparatus connected to said apparatus is the legal external apparatus, at least an output signal from said second demodulating unit is outputted.

32. An optical recording medium comprising: a data recording region having a spiral track constructed by a plurality of pits which are formed on the basis of first data to be subjected to a predetermined modulation and recorded and a land between the pits; and a management data region in which management data of said first data which is recorded in said data recording region is recorded,

wherein said plurality of pits are deviated from the center of said track on the basis of second data.

33. A medium according to claim 32, wherein said plurality of pits are deviated in the direction which perpendicularly crosses said track center across said track center.

34. A medium according to claim 33, wherein said plurality of pits are arranged at at least one of a center position on said track center, a first position which perpendicularly crosses said track center across said track center, and a second position which sandwiches said track center together with said first position on the basis of said second data.

35. A medium according to claim 34, wherein said

plurality of pits are arranged at said center position at every predetermined period.

36. A medium according to claim 34, wherein an 8-14 modulation has been performed to said first data.

37. A medium according to claim 36, wherein said plurality of pits are arranged at said center position every at least one frame.

38. A medium according to claim 32, wherein said first data is digital data which is recorded onto said optical recording medium and said second data is additional data of said digital data.

39. A medium according to claim 38, wherein said additional data is data including at least copyright management data.

40. A medium according to claim 32, wherein said first data is upper bits of digital data which is recorded onto said optical recording medium and said second data is lower bits of said digital data.

41. A medium according to claim 32, wherein identification data showing whether said second data has been recorded on said optical recording medium or not is recorded in said management data region.

42. A medium according to claim 32, wherein said plurality of pits are deviated from said track center by ±0.05 μm while said track center is set to a center.

43. A medium according to claim 32, wherein an enciphering process has been performed to said first

data and said second data is key data for deciphering the enciphering process performed to said first data.

44. A recording method for an optical recording medium, comprising the steps of:

modulating a recording laser beam outputted from a light source on the basis of supplied first data;

deflecting said modulated recording laser beam on the basis of supplied second data in the direction which almost perpendicularly crosses a scanning direction of said modulated recording laser beam of the optical recording medium; and

converging said modulated and deflected recording laser beam onto said optical recording medium by an objective lens.

45. A method according to claim 44, wherein said first data is formed on the basis of main data which is recorded onto said optical recording medium and said second data is formed on the basis of additional data of the main data which is recorded on said optical recording medium.

46. A method according to claim 44, wherein said first data is formed on the basis of upper bits of said main data which is recorded on said optical recording medium and said second data is formed on the basis of lower bits of the main data which is recorded on said optical recording medium.

47. A reproducing method for an optical recording medium having tracks each of which is constructed by a plurality of pits which are formed on the basis of first data to be recorded and a land between the pits, comprising the steps of:

reading out said first data and second data from the optical recording medium on which said plurality of pits have been deviated from the center of said track on the basis of said second data;

demodulating said first data on the basis of the data read out from said optical recording medium; and

demodulating said second data on the basis of the data read out from said optical recording medium.

48. A method according to claim 47, further comprising the steps of: forming a reproduction signal and a tracking error signal on the basis of the data read out from said optical recording medium; demodulating said first data on the basis of said formed reproduction signal; and demodulating said second data on the basis of said formed tracking error signal.

49. A method according to claim 47, wherein said second data is demodulated on the basis of a high frequency component of said formed tracking error signal.

50. A method according to claim 47, wherein an

optical pickup comprising a photodetector having a first photodetecting unit and a second photodetecting unit which are formed by dividing into at least two units in said track direction of said optical recording medium is used, said first data is demodulated on the basis of a sum signal indicative of a sum of the output signals from said first photodetecting unit and said second photodetecting unit, and said second data is demodulated on the basis of a difference signal indicative of a difference of the output signals from said first photodetecting unit and said second photodetecting unit.

51. A method according to claim 50, wherein said second data is demodulated on the basis of a high frequency component of said difference signal.

52. A method according to claim 47, further comprising the step of outputting at least said demodulated second data when it is determined that a connected external apparatus is a legal external apparatus.

53. A reproducing method for an optical recording medium which has tracks each of which is constructed by a plurality of pits which are formed on the basis of first data to be recorded and a land between the pits and in which said plurality of pits are deviated from the center of said track on the basis of second data and on which identification data has been recorded,

comprising the steps of:

demodulating said first data on the basis of the data read out from said optical recording medium; and

demodulating said second data on the basis of the data read out from said optical recording medium in accordance with an identification result of said identification data read out from said optical recording medium.

54. A method according to claim 53, wherein when said identification data recorded on said optical recording medium shows that said second data has been recorded on said optical recording medium, said second data is demodulated on the basis of the data read out from said optical recording medium.

55. A method according to claim 53, further comprising the steps of: forming a reproduction signal and a tracking error signal on the basis of the data read out from said optical recording medium; demodulating the first data on the basis of said formed reproduction signal; and demodulating the second data on the basis of said formed tracking error signal.

56. A method according to claim 53, further comprising the step of synthesizing said demodulated first data and said demodulated second data and outputting a synthesis result.

57. A method according to claim 53, further

comprising the step of outputting at least said demodulated second data when it is determined that a connected external apparatus is a legal external apparatus.

58. A method according to claim 53, wherein an optical pickup comprising a photodetector having a first photodetecting unit and a second photodetecting unit which are formed by dividing into at least two units in said track direction of said optical recording medium is used, said first data is demodulated on the basis of a sum signal indicative of a sum of the output signals from said first photodetecting unit and said second photodetecting unit, and said second data is demodulated on the basis of a difference signal indicative of a difference of the output signals from said first photodetecting unit and said second photodetecting unit.

59. A method according to claim 58, wherein said second data is demodulated on the basis of a high frequency component of said difference signal.